

LOGGERHEADLINES

A publication of the Marine Turtle Conservation Program - sea turtle conservation since 1977



NORTHERN RECOVERY UNIT LOGGERHEAD DNA PROJECT

The Georgia DNR, North Carolina Wildlife Resources Commission, and the SCDNR sea turtle programs are excited to be continuing a multi-state genetics research project in conjunction with the University of Georgia. The project aims to answer several basic loggerhead sea turtle nesting questions and provide insight into the status of the overall population. This past year marks the seventh season of sample collection for this regional, cooperative research project!

With thanks to the many volunteers involved in this project, samples from 61,636 nests have been collected from GA, NC, and SC. Dr. Joe Nairn and Dr. Brian Shamblin at the University of Georgia have successfully assigned a DNA ID code to 54,365 (88.2%) of these samples, identifying **9,419** unique females. By using a multi-state approach, researchers are able to evaluate nesting patterns throughout the region. For complete information on the status of this project, please visit: www.dnr.sc.gov/seaturtle/genetics.htm.



2016 SOUTH CAROLINA STATEWIDE SEA TURTLE NEST COUNT SUMMARY

Despite four named storms and a record hot year, South Carolina beach cooperators observed 6,446 sea turtle nests (all loggerheads) on our beaches. This is the highest number of nests observed since monitoring efforts began and is a 24% increase over our last record year. A breakdown of individual beach counts is listed below:

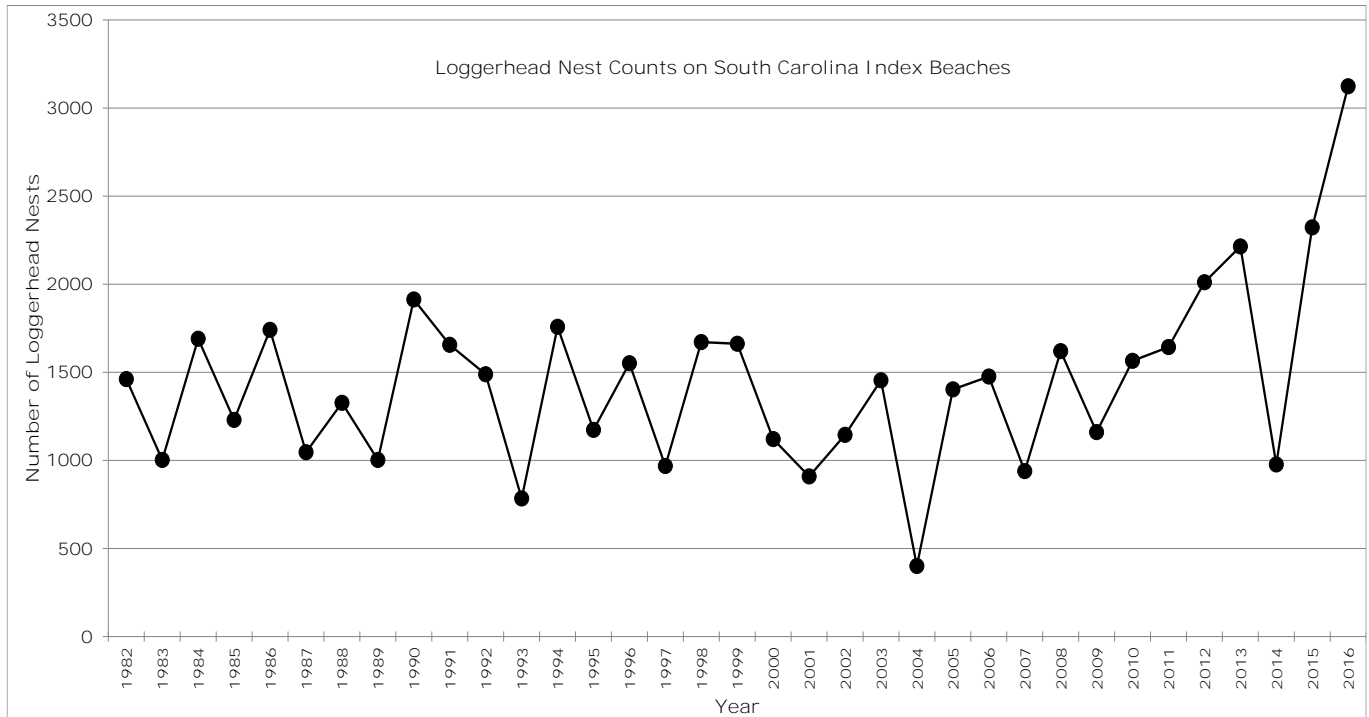
2016 Sea Turtle Nest Numbers							
Waties Island	28	Sand Island	212	Morris Island	5*	Pine Island	11*
North Myrtle Beach	14	South Island	273	Folly Beach	88	Beaufort Interior	22*
Myrtle Beach	20*	Cedar Island	83*	Kiawah Island	392	Harbor Island	113
Myrtle Beach State Park	2	Murphy Island	29*	Seabrook Island	60	Hunting Island	141
Long Bay Estates	3	Cape Island	1,594	Deveaux Bank	11*	Fripp Island	117
Surfside Beach	4	Lighthouse Island	739	Botany Bay Island	208	Pritchards Island	81*
Garden City	14	Raccoon Key	23*	Botany Bay Plantation	295	Little Capers Island	75*
Hungtington Beach S.P	17	Bull Island	167	Interlude	28	St. Phillips Island	8*
Litchfield Beaches	16	Capers Island	13*	Edingsville Beach	67	Bay Point Island	119*
Pawleys Island	24	Dewees Island	19	Edisto Beach S.P	240	Hilton Head Island	411
Debordieu/Hobcaw	67	Isle of Palms	27	Edisto Beach	162	Dafuskie Island	98
North Island	216*	Sullivans Island	15	Otter Island	75*	TOTAL	6,446

*Number represents a minimum nest count because these beaches are not surveyed every day.

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LONG-TERM NESTING TRENDS

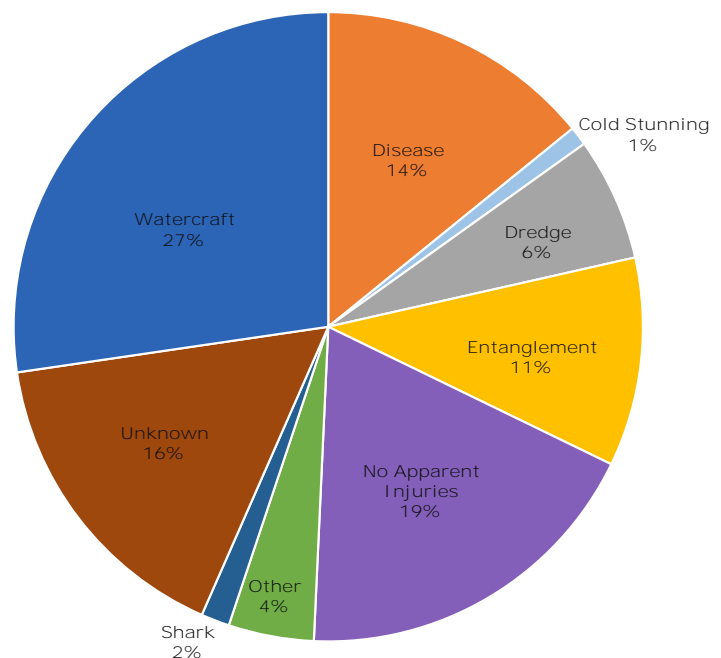
South Carolina has six index beaches (representing 48% of nesting) with projects that have been conducting standardized ground surveys for loggerhead nests since 1982 (South Island, Cape Island, Lighthouse Island, Edisto Beach State Park, Edisto Beach, and Fripp Island). Loggerhead nests from these six beaches totaled **3,123**, surpassing last year's number by over 800 nests and making 2016 the highest index beach nest count on record!



STRANDINGS and REHABILITATION

Stranding numbers in 2016 were considerably higher than previous years, with a total of 205 events reported. The species composition of turtles included 124 loggerheads, 24 greens, 37 **Kemp's ridleys**, 18 leatherbacks, and two turtles of undetermined species.

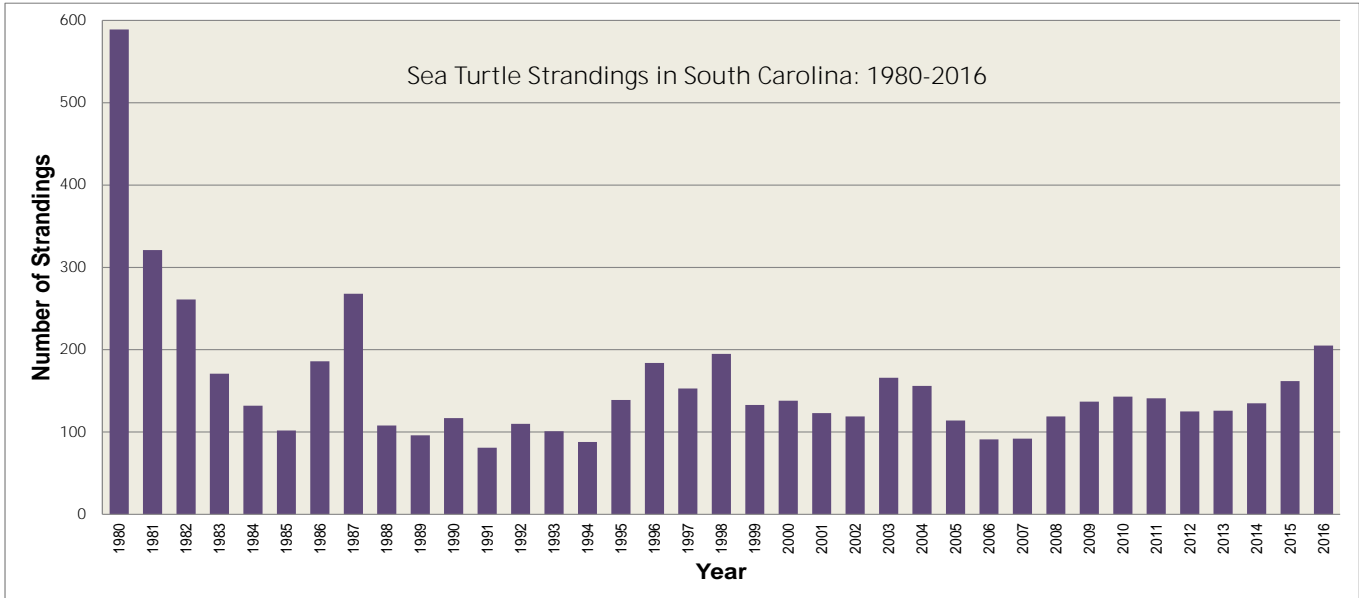
Fifty-nine of the 205 sea turtles stranded alive (**31 loggerheads, 14 Kemp's ridleys, 12 greens** and two leatherbacks). The probable cause of the live stranded turtles included: 15 caught by fisherman on recreational hook and line, 14 diseased, nine boat strikes, and six nesting females (disoriented or could not return to the ocean). Three turtles were caught by a hopper dredge, two were cold stunned, two were entangled in discarded fishing gear and two were stung by a ray in a net during retrieval on a research vessel.



2016 Probable cause of strandings (n=205)

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One turtle was attacked by a shark, one had intestinal impaction, and four turtles could not be categorized. Of the 59 that stranded alive, 17 were released on-site, one precluded rescue capture and one died during transport. Forty-one sea turtles were admitted into the South Carolina Aquarium (SCA) Sea Turtle Care Center. Of those, 19 recovered and were tagged and released. Sixteen died (39%) and six remain under rehabilitation. One turtle was later transferred to Ripley's Aquarium to finish its rehabilitation. In 2016, cataracts continued to be



observed in rehabilitated turtles. SCA veterinarian Dr. Shane Boylan first diagnosed cataracts in a South Carolina sea turtle in 2014. Dr. Anne Cook, a local veterinarian specializing in ophthalmology, performed her eighth surgery to restore sight in these patients. Four rehab turtles presented or developed cataracts this year.

North Carolina had a cold stunning event that brought over 1,800 green sea turtles to their shores. MTCP assisted with transporting 272 turtles from North Carolina to our colleagues with the Georgia Department of Natural Resources, who subsequently released them in Florida waters. Eight of these cold stunned sea turtles were rehabilitated by Ripley's Aquarium in Myrtle Beach and also released in Florida.



South Carolina Aquarium Sea Turtle Care Center - This past year was the busiest stranding season on record for the South Carolina Aquarium, with 56 sea turtles admitted! There were 26 loggerheads, 15 Kemp's ridleys, 14 greens, and 1 leatherback from SC and 15 cold stuns transferred from New England Aquarium. SCA reached an exciting milestone this summer with the release of a sub-adult loggerhead, "Moon," which marked the 200th patient to be successfully rehabilitated and released (see photo on p.5). The aquarium also received their first ever repeat patient, which just so



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happened to be the first cataract patient from 2014. Amidst the strandings, the aquarium is currently undergoing major construction for the new Zucker Family Sea Turtle Recovery Center which will be opening in May of 2017. The new exhibit will be equipped with a new surgical suite, CT scan machine, medical facility, additional larger tanks, and an interactive exhibit hall. This state-of-the-art facility will put the South Carolina Aquarium at the forefront of sea turtle rehabilitation with its ability to give high-quality medical care and increase capacity to treat sick and injured sea turtles. Over the past 16 years the Sea Turtle Care Center has successfully rehabilitated and released 210 turtles to date with 28 of those being in 2016!



For more information please visit www.scaquarium.org.

TAGGING AND RECAPTURES

The Marine Turtle Conservation Program tagged 30 turtles in 2016 prior to being released. All of these were **rehabilitated at the South Carolina Aquarium or Ripley's Aquarium. Two originated from a cold-stunning event** in Massachusetts that occurred in 2016, and 28 turtles stranded in South Carolina originally. Tagging these turtles will allow biologists to track their progress should they be encountered again. The status of other tagged turtles encountered this year either through nesting programs or stranding response are listed below:

Tagged Turtle Status	Original Tag Location	Recapture Date
Stranded- Loggerhead	Myrtle Beach, SC 5/20/2013. Tagged and released in SC 7/15/2014.	6/8/2016
Stranded- Loggerhead	Wassaw, GA 6/9/2013 . Also nested on Little Capers, Seabrook, and Kiawah in 2013.	6/15/2016
Stranded- Loggerhead	Wassaw, GA 6/8/2016	7/5/2016
Stranded- Kemp's ridley	Cape Cod Bay, MA 11/18/2014 - cold stun; Tagged and released 12/31/2015 at Cape Canaveral, FL.	5/27/2016
Nesting- Loggerhead	Hilton Head and Tybee, GA in 2010. Nested on Edingsville and Fripp Island in 2013.	7/3/2016

REGIONAL AND NETWORK UPDATE

SCDNR IN-WATER SEA TURTLE RESEARCH - A total of 121 trawling events between 23 May and 1 July **were conducted in the Charleston, SC shipping channel, capturing 55 loggerheads and one Kemp's ridley.** Three loggerhead sea turtles were also within-project recaptures, including one loggerhead previously captured twice in the Charleston, SC shipping channel in 2004 and two others originally captured 5 to 8 km away 8 to 15 years earlier.

An additional 121 trawling events were conducted off Brunswick, GA. Trawling largely targeted shallow waters **to increase the probability of capturing Kemp's ridley sea turtles; indeed, a 10-fold increase in capture rates was observed (n=47).** Targeted sampling also netted the first project recapture of a Kemp's ridley, 5.2 km from where it was first captured in 2012.

Loggerhead telemetry: Acoustic transmitters were attached to 22 loggerhead turtles captured in Charleston shipping channel and three loggerheads captured off Brunswick, GA; 21 turtles were detected upwards of

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58.7k times and up to six months later. Four satellite transmitters were also deployed on adult male loggerheads after capture in Charleston shipping channel with three emigrating northward and established seasonal foraging areas in nearshore waters near Cape Hatteras, NC or near the continental shelf edge off Ocean City, MD. Two males that remained offshore during the summer appear to be overwintering between Cape Hatteras and Cape Fear, NC: http://www.seaturtle.org/tracking/index.shtml?project_id=828

Kemp's ridley telemetry: Acoustic transmitters were attached to 16 Kemp's ridley sea turtles captured off Brunswick, GA; detections were only collected for seven transmitters for up to 48 days after capture. Satellite transmitters deployed on six Kemp's ridley provided >4K detections up to 82 days after capture; four remained localized for at least a month and a fifth emigrated north to the GA/SA border, and a sixth emigrated south around Florida Keys into the Gulf of Mexico near edge of continental shelf before moving towards the Big Ben region of Florida: http://www.seaturtle.org/tracking/?project_id=1212



NORTH CAROLINA - The loggerhead nest count for 2016 in North Carolina was 1,621 - 369 more nests than last year. In addition, 25 green turtle nests and four Kemp's ridley were observed. There were 2,562 stranded sea turtles reported in 2016 with a majority of those strandings being cold-stunned green sea turtles in January. Other causes of stranding included incidental capture, no apparent injuries and watercraft interactions. Read more about the North Carolina Sea Turtle Project here: <http://www.seaturtle.org/>

GEORGIA- It was again a big nesting year for loggerheads in Georgia, with 3,287 nests reported. One Kemp's ridley and three green turtle nests were also located by sea turtle cooperators for a total of 3,291 nests statewide.



A total of 202 strandings occurred on the Georgia coast in 2016. Loggerheads were the most common species (104) followed by Kemp's ridleys (45), green turtles (44), and leatherbacks (9). more information on the Georgia Sea Turtle Recovery Efforts visit: <http://www.georgiawildlife.com/>



FLORIDA - In 2016, loggerhead turtle nest numbers reached a record high of approximately 122,706 nests statewide with green turtle and leatherback nesting falling to 5,393 and 1,054 nests respectively statewide, according to the Florida Fish and Wildlife Conservation Commission (FWCC). The total finalized statewide nesting count of all species for Florida in 2016 was 129,153.

In 2016, data from the index nesting beach survey program (INBS) indicate a record high year of 65,807 loggerhead nest counts since the beginning of the INBS program. Loggerhead nest numbers in Florida show a complex pattern: nest counts have increased, then decreased, then increased again. Despite the variable pattern, the overall trend in this species' nest numbers is positive.

The trend for green turtles shows an exponential increase in nesting over the past 27 years. Though nest numbers were lower in 2016 than the previous year, this decrease was expected as green turtles typically follow a 2-year nesting cycle. In 1989, biologists documented 464 green turtle nests on index beaches. In 2011, the index count was 10,701; and in 2015 a record number of 27,975 green turtle nests on index beaches since the INBS program began. The index count represents about 68 percent of green turtle nesting statewide. Although nesting at a much lower level than loggerheads, the trend in leatherback nesting also shows an exponential increase over the last 27 years. For information on sea turtle nesting in Florida, visit: www.myfwc.com/research/wildlife/sea-turtles/nesting/.

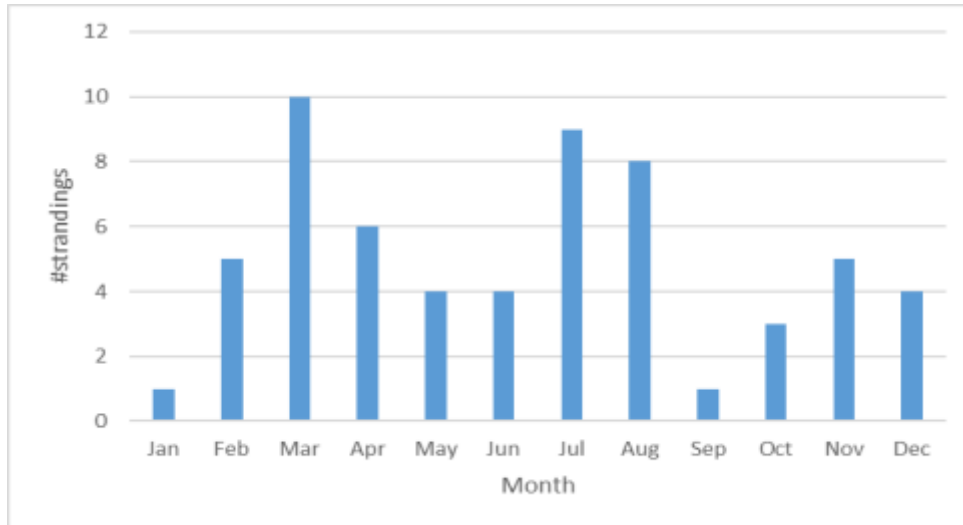
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MARINE MAMMAL STRANDINGS - This past year (216) saw similar numbers of strandings in South Carolina as in 2015, with 60 marine mammals recorded. Bottlenose dolphin (Tt) strandings were higher than average (mean ~40 since 1992) with 54. Bottlenose dolphin strandings were highest in March, July, and August, a slight deviation from 2015 and historically. Tests for brucellosis, a potential causative factor for recent increased mortality in the Gulf of Mexico and for 2012 SC strandings were conducted on 44 bottlenose dolphins, of which 12 tested positive (27.3%). Perinate (near-birth) dolphin mortality increased slightly in 2016 (29.6% of total), though remained near the historical average.

Other species to strand were two pygmy sperm whales (one alive), one humpback whale, one Gervais' beaked whale, and one Atlantic spotted dolphin. Live strandings were down from a record high in 2015 (n=15) to 6 in 2016, 2 of which were dolphins entangled in crab pot buoy lines.

Human interaction (HI) cases for bottlenose dolphins were slightly lower in 2016 (n=7; 21.2%) compared to the historical average (22%). These percentages are based on animals that were confirmed HI cases and those that died of natural causes and excluded animals where the suspected cause of death could not be determined. Three cases involved crab pot line entanglements, two showed obvious signs of rope wounds, one contained marine debris (aluminum foil) impacting the esophagus, and one was pushed off the beach by a bystander. One of the crab pot entanglements was disentangled, one died on route to rescue, and one was found dead in the

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buoy line. NO-Charleston thank all the unteers who ing 2016. shows all maspecies month in for 2016.

SEABIRD NESTING - **SCDNR's seabird biologists** are excited to report high nest numbers and a productive 2016 beach bird breeding season. Nine species of seabirds, including brown pelicans, royal terns, sandwich terns, and black skimmers regularly nest in South Carolina in large colonies of hundreds to thousands of pairs. Each spring and summer, staff biologists survey seabird nests at DNR Seabird Sanctuaries and on federal and private islands to determine statewide nesting trends of these colonial birds.

Biologists counted 4,268 brown pelican, 11,235 royal tern, 3,448 sandwich tern, and 825 black skimmer nests in South Carolina this year. SCDNR has been conducting aerial photographic surveys of seabird colonies for the last few years to reduce disturbance at large nesting colonies. Many of this **year's counts were made from photographs that** biologists took during survey flights operated by SCDNR law enforcement pilots. Image at right is a black skimmer in flight.



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CITIZEN STEWARDSHIP - Our volunteers in action!



ADDITIONAL THANKS - The Marine Turtle Conservation Program would like to recognize the Santee Cooper and South Carolina Electric and Gas service utilities for their continued support of sea turtle conservation efforts in South Carolina. We are also grateful to seaturtle.org for their support of research and conservation efforts in the sea turtle community. Their site is the online source for all sea turtles news, events, jobs, current research and information, and it hosts our online nest, genetic and stranding databases as well as those from around the world.



seaturtle.org



The South Carolina Marine Turtle Conservation Program began in 1977 with beach management research. The program further developed in the early eighties with the formation of the nest protection and stranding volunteer networks along the coast of South Carolina. Today, the program encompasses research, management, monitoring and education within the local, regional, and international communities. We are indebted to the continued passion, dedication and effort of our staff, partners and volunteers.

Current Program Staff

Michelle Pate - Coordinator	Jenna Cormany - Wildlife Biologist
Charlotte Hope - Wildlife Biologist	Michael Collins - Field Technician
Liz Duermit - Field Technician	

The South Carolina Department of Natural Resources prohibits discrimination on the basis of race, color, gender, national origin, disability, religion or age. Direct all inquiries to the Office of Human Resources, Post Office Box 167, Columbia, SC 29202.

This program is funded in part with grants from NOAA Fisheries and the US Fish and Wildlife Service under Section 6 of the Endangered Species Act. Data presented in Loggerheadlines are not to be used in any publication, product, or commercial application without prior written consent of the data owner.



2016 Loggerheadlines

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ANNOUNCEMENTS FROM THE SEA TURTLE OFFICE

World Turtle Day: The South Carolina Aquarium will host turtle-themed activities Saturday, May 27, 2017 in association with the opening of new the [Sea Turtle Care Center](#).

37th Annual [Symposium on Sea Turtle Biology and Conservation](#) 2017: Las Vegas, NV; 15 April - 20 April, 2017.

Breaking Down Plastic: South Carolina Aquarium [Plastic Pollution Summit](#): Thursday, March 30, 2017.

Check out the SCDNR [Facebook](#) Page and Marine Resources [Coastal Blog](#) to get up-to-date information on our state's natural resources.

2016 Seasonal Staff: Appreciation for a job well done to our 2016 seasonal program staff and interns: Lauryn Wright, Caitlin Sylvester, Dan McNamee, Jacob Hoffman — technicians in Charleston, Karen Lohman and Brittney Rigelwood — technicians at the Tom Yawkey Wildlife Center and Heritage Preserve in Georgetown, and Theresa Madrigal and Morgan Paris and Ann Clark Little — technicians and intern at the Botany Bay Plantation Wildlife Management Area located on Edisto Island.



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Support [Sea Turtle Conservation](#) and help us keep wildlife in your life!

*Direct donation to Marine Turtle Conservation Program to fund seasonal interns or students

*Buy or renew an endangered species license plate

*Contribute to the Check-Off for Wildlife Fund #1 at tax time

